

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: io LED

Report Number: P182728

Luminaire Tested: **LDSQA4A28835D010TE LAR25NF 4LSQA1H 30°**

Issue Date: 3/3/2020

Test Information

Test Method: LM-41-14
Report Number: P182728
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26800)
Test Lab: INNOVATION CENTER-P2
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: io LED
Catalog Number: LDSQA4A28835D010TE LAR25NF 4LSQA1H 30°
Description: PORTFOLIO 4" SQUARE ADJUSTABLE REFLECTOR, ANGLE-CUT TRIM,
SELF-FLANGED, 25° NARROW FLOOD, 30° Tilt
Light Source: (1) HIGH LUMEN LED 80CRI / 3500K CCT
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2938.0 lumens
Efficiency: N/A
Efficacy: 66.0 lumens/watt
Spacing Criteria (0/90/45): 2.38 / 0.59 / 1.18
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

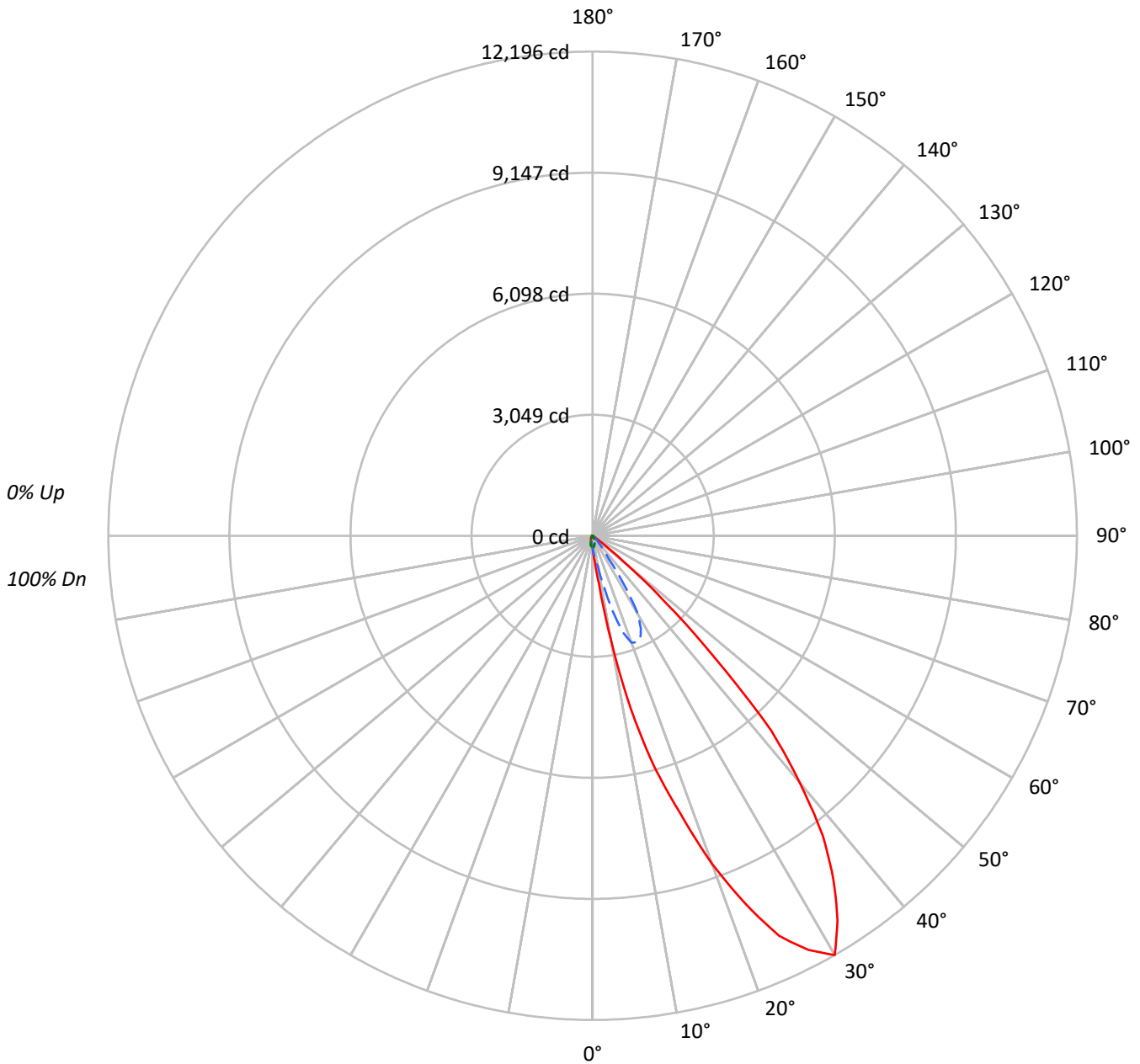
Input Watts (W): 44.49
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									50									30									10									0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0																
RCR																																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100																			
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91																			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83																			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75																			
4	93	84	77	72	91	82	76	72	80	75	71	78	73	70	76	72	69	67																			
5	87	77	70	64	85	76	69	64	74	68	64	72	67	63	70	66	62	61																			
6	81	70	63	58	79	69	63	58	68	62	57	66	61	57	65	60	56	55																			
7	76	64	57	52	74	64	57	52	62	56	52	61	56	51	60	55	51	49																			
8	71	59	52	47	69	59	52	47	57	51	47	56	51	47	55	50	46	45																			
9	66	55	48	43	65	54	47	43	53	47	43	52	46	42	51	46	42	41																			
10	62	50	44	39	61	50	43	39	49	43	39	48	43	39	47	42	38	37																			

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	29721	29721	29721
5°	65777	28114	19760
10°	263336	24415	16497
15°	606992	19417	14502
20°	906092	13773	12938
25°	1188437	9182	11512
30°	1364237	5794	10068
35°	1250868	3713	8704
40°	1025783	2415	7411
45°	594687	1685	5973
50°	168526	1236	4928
55°	15437	1149	4138
60°	2383	1318	3429
65°	619	1261	2499
70°	765	1558	1926
75°	1011	2059	2059
80°	0	3068	1506
85°	0	6113	1556



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.6	1.5
10°-20°	390.7	13.3
20°-30°	951.9	32.4
30°-40°	1031.7	35.1
40°-50°	467.5	15.9
50°-60°	36.2	1.2
60°-70°	7.5	0.3
70°-80°	5.5	0.2
80°-90°	3.5	0.1
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	1386.2	47.2
0°-40°	2417.9	82.3
0°-60°	2921.5	99.4
0°-90°	2938.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2938.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	307	307	307	307	307	
5°	676	499	289	218	203	122
15°	6052	1980	194	140	145	1759
25°	11118	2843	86	85	108	5068
35°	10577	723	31	49	74	6506
45°	4341	91	12	27	44	3427
55°	91	12	7	16	24	209
65°	3	4	6	11	11	5
75°	3	4	6	8	6	2
85°	0	4	6	4	1	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8
2.5°	459.6	451.4	455.5	444.6	437.8	432.3	435.0	432.3	414.6	410.5	396.8
5°	676.4	664.1	664.1	640.9	616.4	601.4	601.4	583.7	545.5	527.8	499.1
7.5°	1212.3	1187.8	1167.3	1095.1	1001.0	947.8	934.1	859.1	762.3	700.9	628.7
10°	2677.0	2574.7	2502.4	2314.2	2061.9	1905.1	1838.3	1579.2	1271.0	1039.1	829.1
12.5°	4501.6	4362.5	4235.7	3927.5	3564.7	3317.9	3185.6	2803.8	2205.1	1776.9	1329.6
15°	6052.2	5902.1	5752.1	5377.1	4993.9	4779.8	4537.1	4031.1	3240.2	2632.0	1980.1
17.5°	7324.5	7239.9	7085.9	6536.3	6053.5	5719.4	5467.1	4805.7	3991.6	3297.5	2559.7
20°	8789.1	8580.5	8305.0	7638.2	6978.1	6559.5	6204.9	5398.9	4458.0	3660.2	2866.5
22.5°	10021.9	9873.3	9477.8	8598.2	7627.2	7270.0	6836.3	5866.7	4758.0	3814.3	2902.0
25°	11118.3	10885.2	10388.8	9342.8	8348.6	7740.4	7208.6	6120.3	4868.5	3825.2	2843.3
27.5°	11760.7	11456.5	10872.9	9732.8	8598.2	7925.9	7336.8	6164.0	4798.9	3680.7	2629.2
30°	12195.7	11590.2	10945.2	9736.9	8519.1	7831.8	7220.9	5944.4	4509.8	3350.6	2269.2
32.5°	11478.4	11127.9	10511.5	9349.6	8088.2	7417.2	6810.4	5468.5	4058.4	2861.1	1579.2
35°	10577.0	10293.3	9757.4	8603.7	7441.8	6809.0	6165.3	4857.5	3470.6	1966.5	722.8
37.5°	9529.6	9307.3	8730.5	7676.3	6653.6	6034.4	5389.4	4140.2	2443.8	975.1	439.1
40°	8111.4	7923.2	7450.0	6603.1	5660.8	5071.6	4477.1	3097.0	1326.9	544.1	286.4
42.5°	6667.2	6509.0	6078.1	5345.8	4518.0	4032.5	3508.8	1887.4	660.0	342.3	159.6
45°	4340.7	4143.0	3911.1	3575.7	3166.5	2867.9	2250.1	911.0	391.4	190.9	91.4
47.5°	2488.8	2357.9	1977.4	1560.1	1266.9	1156.4	841.4	424.1	215.5	110.5	55.9
50°	1118.2	1033.7	867.3	706.4	511.4	399.6	339.6	212.7	106.4	60.0	38.2
52.5°	275.5	280.9	265.9	233.2	207.3	175.9	152.7	99.6	55.9	36.8	24.5
55°	91.4	92.7	84.6	80.5	73.6	68.2	62.7	45.0	34.1	32.7	12.3
57.5°	32.7	32.7	34.1	31.4	30.0	28.6	27.3	23.2	20.5	12.3	6.8
60°	12.3	12.3	12.3	13.6	13.6	13.6	15.0	13.6	9.5	6.8	5.5
62.5°	5.5	5.5	5.5	5.5	6.8	6.8	8.2	6.8	5.5	5.5	4.1
65°	2.7	2.7	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
67.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1	4.1
70°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1	4.1
72.5°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1	4.1
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	4.1
77.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7	4.1
80°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7	4.1
82.5°	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7	4.1
85°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	4.1
87.5°	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	2.7	2.7	2.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8
2.5°	383.2	375.0	358.7	346.4	336.8	335.5	327.3	313.7	308.2	298.7	290.5
5°	471.8	451.4	425.5	400.9	383.2	373.7	345.0	319.1	304.1	289.1	275.5
7.5°	567.3	520.9	475.9	436.4	411.8	396.8	362.7	320.5	293.2	271.4	253.7
10°	687.3	591.9	514.1	452.8	420.0	399.6	358.7	308.2	274.1	248.2	230.5
12.5°	961.4	700.9	549.6	460.9	420.0	391.4	342.3	291.8	253.7	222.3	203.2
15°	1430.5	979.1	651.9	465.0	406.4	373.7	317.7	264.6	226.4	193.6	175.9
17.5°	1872.4	1288.7	814.1	493.7	398.2	347.7	285.0	233.2	193.6	162.3	147.3
20°	2101.5	1442.8	904.1	515.5	384.6	315.0	246.8	199.1	160.9	133.6	121.4
22.5°	2106.9	1429.2	860.5	465.0	334.1	270.0	211.4	163.6	130.9	107.7	98.2
25°	1977.4	1264.2	707.8	362.7	270.0	226.4	175.9	133.6	102.3	85.9	79.1
27.5°	1733.3	1022.8	522.3	261.8	211.4	180.0	137.7	102.3	77.7	66.8	62.7
30°	1340.5	632.8	289.1	193.6	159.6	135.0	99.6	68.2	58.6	51.8	49.1
32.5°	665.5	309.6	204.6	137.7	109.1	85.9	62.7	50.5	45.0	40.9	39.5
35°	361.4	222.3	128.2	83.2	65.5	54.5	42.3	35.5	32.7	31.4	31.4
37.5°	252.3	132.3	77.7	50.5	40.9	36.8	30.0	25.9	24.5	24.5	24.5
40°	139.1	79.1	47.7	32.7	27.3	24.5	20.5	19.1	19.1	19.1	20.5
42.5°	80.5	49.1	32.7	23.2	19.1	17.7	15.0	13.6	15.0	15.0	16.4
45°	51.8	36.8	21.8	16.4	13.6	12.3	10.9	10.9	12.3	12.3	13.6
47.5°	36.8	25.9	15.0	10.9	8.2	8.2	8.2	8.2	9.5	10.9	12.3
50°	21.8	13.6	8.2	6.8	5.5	5.5	5.5	6.8	8.2	8.2	9.5
52.5°	12.3	8.2	5.5	5.5	4.1	4.1	5.5	5.5	6.8	8.2	9.5
55°	6.8	5.5	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8	8.2
57.5°	5.5	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8	6.8
60°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	6.8	6.8
62.5°	4.1	4.1	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5	6.8
65°	4.1	4.1	4.1	5.5	4.1	5.5	5.5	5.5	5.5	5.5	6.8
67.5°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.8
70°	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.8
72.5°	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	6.8
75°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
77.5°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
80°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
82.5°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
85°	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
87.5°	4.1	4.1	4.1	4.1	5.5	5.5	5.5	5.5	5.5	5.5	5.5
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8
2.5°	287.7	278.2	271.4	268.7	263.2	264.6	260.5	257.7	249.6	249.6	244.1
5°	265.9	253.7	245.5	241.4	235.9	234.6	230.5	226.4	218.2	216.8	212.7
7.5°	242.7	230.5	220.9	216.8	211.4	210.0	204.6	201.8	195.0	193.6	189.6
10°	218.2	204.6	196.4	192.3	186.8	186.8	182.7	180.0	174.6	174.6	171.8
12.5°	192.3	180.0	174.6	169.1	166.4	166.4	163.6	160.9	156.8	158.2	156.8
15°	165.0	155.5	150.0	147.3	145.9	145.9	144.6	143.2	140.5	143.2	140.5
17.5°	139.1	132.3	128.2	126.8	125.5	125.5	125.5	126.8	125.5	128.2	128.2
20°	114.6	109.1	106.4	106.4	105.0	107.7	107.7	110.5	110.5	114.6	115.9
22.5°	94.1	90.0	88.6	88.6	88.6	91.4	92.7	95.5	96.8	100.9	103.6
25°	75.0	73.6	73.6	73.6	75.0	77.7	80.5	83.2	84.6	90.0	91.4
27.5°	61.4	60.0	61.4	61.4	62.7	66.8	69.5	72.3	75.0	79.1	81.8
30°	49.1	49.1	50.5	51.8	53.2	55.9	60.0	62.7	65.5	69.5	72.3
32.5°	39.5	40.9	42.3	43.6	43.6	47.7	50.5	54.5	55.9	60.0	62.7
35°	32.7	34.1	35.5	36.8	36.8	40.9	43.6	46.4	49.1	51.8	54.5
37.5°	25.9	27.3	30.0	31.4	31.4	35.5	36.8	39.5	42.3	45.0	47.7
40°	21.8	23.2	25.9	25.9	27.3	30.0	31.4	34.1	36.8	39.5	42.3
42.5°	17.7	19.1	21.8	23.2	23.2	25.9	27.3	30.0	31.4	34.1	35.5
45°	16.4	16.4	19.1	19.1	20.5	21.8	24.5	25.9	27.3	30.0	31.4
47.5°	13.6	15.0	16.4	17.7	17.7	19.1	20.5	21.8	23.2	25.9	27.3
50°	10.9	12.3	15.0	15.0	15.0	17.7	19.1	20.5	20.5	21.8	23.2
52.5°	10.9	10.9	12.3	13.6	13.6	15.0	16.4	17.7	17.7	19.1	20.5
55°	9.5	9.5	10.9	12.3	12.3	13.6	15.0	15.0	16.4	16.4	17.7
57.5°	8.2	9.5	10.9	10.9	10.9	12.3	13.6	13.6	15.0	15.0	16.4
60°	8.2	9.5	9.5	10.9	10.9	12.3	12.3	12.3	13.6	13.6	13.6
62.5°	8.2	8.2	9.5	9.5	9.5	10.9	10.9	12.3	12.3	12.3	12.3
65°	8.2	8.2	9.5	9.5	9.5	10.9	10.9	10.9	10.9	10.9	10.9
67.5°	6.8	8.2	8.2	8.2	9.5	9.5	9.5	9.5	9.5	9.5	9.5
70°	6.8	6.8	8.2	8.2	8.2	9.5	9.5	9.5	9.5	9.5	9.5
72.5°	6.8	6.8	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
75°	6.8	6.8	6.8	6.8	6.8	8.2	8.2	8.2	8.2	6.8	6.8
77.5°	5.5	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	5.5
80°	5.5	5.5	6.8	5.5	6.8	6.8	6.8	6.8	5.5	5.5	5.5
82.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1
85°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1	2.7
87.5°	5.5	5.5	5.5	5.5	5.5	5.5	4.1	4.1	4.1	2.7	2.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CATALOG NUMBER: LDSQA4A28835D010TE LAR25NF 4LSQA1H 30°

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	306.8	306.8	306.8	306.8	306.8	306.8	306.8	306.8
2.5°	241.4	244.1	241.4	244.1	237.3	240.0	242.7	235.9
5°	210.0	207.3	208.6	211.4	205.9	207.3	208.6	203.2
7.5°	188.2	189.6	186.8	189.6	185.5	186.8	188.2	184.1
10°	170.5	171.8	170.5	171.8	167.7	170.5	171.8	167.7
12.5°	154.1	156.8	155.5	158.2	154.1	156.8	159.6	154.1
15°	141.8	144.6	143.2	145.9	143.2	145.9	148.6	144.6
17.5°	129.6	132.3	132.3	135.0	133.6	136.4	139.1	135.0
20°	117.3	121.4	121.4	124.1	124.1	125.5	129.6	125.5
22.5°	106.4	110.5	110.5	113.2	113.2	115.9	118.6	115.9
25°	94.1	99.6	100.9	103.6	103.6	106.4	110.5	107.7
27.5°	85.9	90.0	91.4	94.1	95.5	98.2	100.9	98.2
30°	75.0	80.5	81.8	84.6	85.9	90.0	91.4	90.0
32.5°	66.8	70.9	72.3	75.0	77.7	80.5	83.2	81.8
35°	58.6	62.7	64.1	66.8	68.2	72.3	75.0	73.6
37.5°	51.8	55.9	57.3	58.6	60.0	64.1	66.8	65.5
40°	45.0	47.7	49.1	51.8	53.2	55.9	58.6	58.6
42.5°	39.5	42.3	43.6	45.0	46.4	49.1	51.8	50.5
45°	34.1	36.8	38.2	39.5	40.9	42.3	45.0	43.6
47.5°	28.6	31.4	32.7	34.1	35.5	36.8	39.5	38.2
50°	24.5	27.3	27.3	28.6	30.0	31.4	34.1	32.7
52.5°	21.8	23.2	24.5	24.5	25.9	27.3	30.0	28.6
55°	19.1	20.5	20.5	21.8	21.8	23.2	24.5	24.5
57.5°	16.4	17.7	17.7	19.1	19.1	20.5	21.8	21.8
60°	15.0	15.0	16.4	16.4	16.4	17.7	17.7	17.7
62.5°	13.6	13.6	13.6	13.6	13.6	13.6	13.6	13.6
65°	10.9	10.9	10.9	10.9	10.9	10.9	10.9	10.9
67.5°	9.5	9.5	9.5	9.5	9.5	8.2	8.2	8.2
70°	8.2	8.2	8.2	8.2	8.2	6.8	6.8	6.8
72.5°	8.2	8.2	6.8	6.8	6.8	6.8	6.8	5.5
75°	6.8	6.8	6.8	6.8	5.5	5.5	5.5	5.5
77.5°	5.5	5.5	5.5	5.5	4.1	4.1	4.1	4.1
80°	5.5	4.1	4.1	4.1	4.1	4.1	4.1	2.7
82.5°	4.1	4.1	4.1	2.7	2.7	2.7	2.7	2.7
85°	2.7	2.7	2.7	2.7	1.4	1.4	1.4	1.4
87.5°	2.7	1.4	1.4	1.4	1.4	1.4	1.4	1.4
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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— 0°-180° - - 45°-225° - - - - 90°-270°













(END OF REPORT)